The documentation and process conversion measures necessary to comply with this revision shall be completed by 26 Aug 94.

INCH-POUND

MIL-S-19500/358D
26 May 1994
SUPERSEDING
MIL-S-19500/358C
29 September 1992

MILITARY SPECIFICATION

SEMICONDUCTOR DEVICE, DIODE, SILICON, VOLTAGE REGULATOR B AND RB,
TYPES 1N3305 THROUGH 1N3350, 1N4549 THROUGH 1N4554
JAN, JANTX, JANTXV, AND JANS

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the detail requirements for B type (standard polarity) and RB type (reverse polarity), 50 watt, silicon, voltage regulator diodes. Four levels of product assurance are provided for each device type as specified in MIL-S-19500.

1.2 Physical dimensions. See figure 1 (DO-5).

1.3 Maximum ratings. Maximum ratings are as shown in columns 3, 7, and 9 of table V herein and as follows:

Derate P_T = 50 W at $T_C \geq \pm 75°C$ at 0.5 W/°C above $T_C \geq \pm 75°C$.

$-65°C \leq T_C \leq 150°C$; $-65°C \leq T_{STG} \leq +175°C$.

1.4 Primary electrical characteristics. Primary electrical characteristics are as shown in columns 1, 8, 11, and 13 of table V herein, and as follows:

Thermal resistance ($R_{\theta JC}$) = 2.0°C/W maximum.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Laboratory Command, Electronics and Power Sources Command, ATTN: AMSRL-EP-RO, Fort Monmouth, NJ 07703-5601 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 5961

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATION

MILITARY

MIL-S-19500 - Semiconductor Devices, General Specification for.

STANDARD

MILITARY

MIL-STD-750 - Test Methods for Semiconductor Devices.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Defense Printing Service Detachment Office, Building 4D (Customer Service), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Associated detail specification. The individual item requirements shall be in accordance with MIL-S-19500 and as specified herein.

3.2 Abbreviations, symbols, and definitions. Abbreviations, symbols, and definitions used herein shall be as specified in MIL-S-19500.

3.3 Design, construction, and physical dimensions. Semiconductor diodes shall be of the design, construction, and physical dimensions as specified in MIL-S-19500 and on figure 1 herein. Current density of internal conductors shall be as specified in MIL-S-19500. The US Government's preferred system of measurement is the metric SI system. However, since this item was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound units shall take precedence.

3.3.1 Lead material and finish. Lead finish shall be solderable as defined in MIL-S-19500, MIL-STD-750, and herein. Where a choice of lead finish is desired, it shall be specified in the acquisition document (see 6.2).

3.3.2 Polarity. Standard units (B) shall have the anode connected to the stud. Reversed units (RB) shall have the cathode connected to the stud.

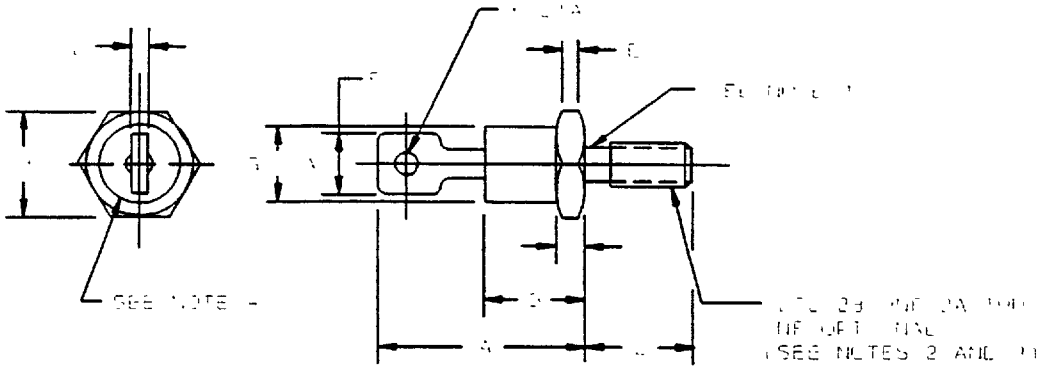
3.4 Marking. Marking shall be in accordance with MIL-S-19500. At the option of the manufacturer, the marking of the country of origin may be omitted from the body of the semiconductor.

3.4.1 RB types. Reverse (cathode to stud) units shall be marked with an "R" preceding the "B" in the type designation.

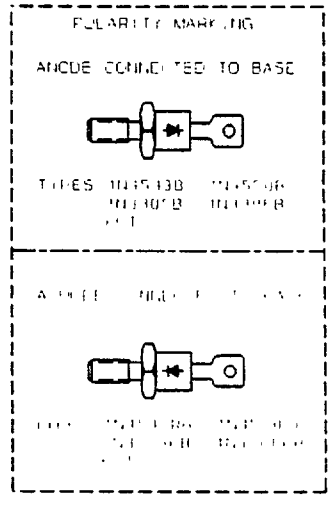
4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-S-19500, and as specified herein. Lot accumulation period shall be six months in lieu of six weeks.

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-S-19500.



Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	---	25.40	---	1.000
B	---	11.43	---	.450
C	2.92	5.08	.115	.200
D	10.72	11.51	.422	.453
E	1.52	---	.060	---
F	---	9.53	---	.375
G	---	16.94	---	.667
H	16.94	17.45	.667	.687
K	---	4.45	---	.175
L	---	2.03	---	.080



NOTES:
1. Diameter of unthreaded portion shall be .249 maximum and .220 minimum.
2. Maximum pitch diameter of plated threads shall be basic pitch diameter (.2268).
3. Complete threads to extend to within 2-½ threads of seating plane.
4. Angular orientation of this terminal is undefined.
5. Dimensions are in millimeters.
6. Inch-pound equivalents are given for general information only.

FIGURE 1. Physical dimensions.

4.3 Screening (JANS, JANTX, and JANTXV levels only). Screening shall be in accordance with table II of MIL-S-19500, and as specified herein. The following measurements shall be made in accordance with table I herein. Devices that exceed the limits of table I herein shall not be acceptable.

Screen (see table II of MIL-S-19500)	Measurement	
	JANS level	JANTX and JANTXV levels
9	I_R and V_Z (for devices with $V_{Z(nom)} \geq 10$ V dc; see column 1 of table V)	Not applicable
11	I_R and V_Z; ΔI_R = 100% of initial value or 2 μA dc, whichever is greater; ΔV_Z = ±1 percent of initial value (for devices with $V_{Z(nom)} \geq 10$ V dc; see column 1 of table V)	I_{R1} and V_Z
12	See 4.2.1	See 4.2.1
13	Subgroups 2, (except forward voltage test) and 3 of table I herein; ΔI_{R1} = 100 percent of initial value or 2 μA dc, whichever is greater; ΔV_Z = ±1% of initial value	Subgroup 2 (except forward voltage test) of table I herein; ΔI_{R1} = 100 percent of initial value or 2 μA dc, whichever is greater; V_Z = ±1 percent of initial value

4.3.1 Power burn-in conditions. Power burn-in conditions are as follows:

I_Z = Column 4 of table V at a T_C = +150°C.

4.4 Quality conformance inspection. Quality conformance inspection shall be in accordance with MIL-S-19500 and as specified herein. Group A inspection shall be performed on each sublot.

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with MIL-S-19500 and table I herein. End point electrical measurements shall be in accordance with the applicable steps of table IV herein.

4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the conditions specified for subgroup testing in table IVa (JANS) and table IVb (JAN, JANTX, and JANTXV), of MIL-S-19500, and tables IIa and IIb herein. Electrical measurements (end-points) and delta requirements shall be in accordance with the applicable steps of table IV herein.

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in table V of MIL-S-19500 and table III herein. Electrical measurements (end-points) and delta requirements shall be in accordance with the applicable steps of table IV herein.

TABLE I. Group A inspection.

Inspection 1/	MIL-STD-750		Symbol	Limits 2/		Unit
	Method	Conditions		Min	Max	
Subgroup 1						
Visual and mechanical inspection	2071					
Subgroup 2						
Forward voltage	4011	I_F = 10 A dc	V_F		1.5	V dc
Reverse current	4016	V_R = column 10 of table V, dc method	I_{R1}		Column 11	µA dc
Regulator voltage (see 4.5.3)	4022	I_Z = column 4 of table V	V_Z	Column 2	Column 3	V dc
Subgroup 3						
High temperature operation:		T_A = 150°C				
Reverse current	4016	V_R = column 10 of table V, dc method	I_{R2}		Column 14	µA dc
Subgroup 4						
Small-signal breakdown impedance	4051	I_Z = column 4 of table V, I_{sig} = 10% I_Z	Z_Z		Column 5	ohms
Knee impedance	4051	I_{ZK} = 5 mA dc, I_{sig} = 10% I_{ZK}	Z_{ZK}		Column 6	ohms
Subgroup 5						
Not applicable						
Subgroup 6		JANS level only				
Surge current (see 4.5.1)	4066	I_{ZSM} = column 9 of table V				
End point electrical measurements		See table IV, steps 1, 3, and 4				
Subgroup 7		JANS level only				
Voltage regulation (see 4.5.2)			$V_{Z(reg)}$		Column 8	V dc
Temperature coefficient of breakdown voltage (see 4.5.4)	4071	I_Z = column 4 of table V, T_1 = 30°C ±3°C, T_2 = T_1 +100°C	αV_Z		Column 13	%/°C

1/ For sampling plan, see MIL-S-19500.
2/ Column references are to table V herein.

TABLE IIa. Group B inspection for JANS devices.

Inspection 1/	MIL-STD-750	
	Method	Conditions
Subgroup 1		
Physical dimensions	2066	See figure 1
Subgroup 2		
Solderability	2026	
Resistance to solvents	1022	
Subgroup 3		
Thermal shock (temperature cycling)	1051	T_{high} = +175°C
Hermetic seal Fine Gross	1071	
Electrical measurements		See table IV, steps 1, 3, 4, 5, and 6.
Die shear	2017	
Subgroup 4		
Intermittent operating life	1037	I_Z = column 7 of table V, T_C = 30°C ±3°C, t_{on} = t_{off} = 3 minutes minimum for 2,000 cycles.
Electrical measurements		See table IV, steps 1, 3, 4, 5, and 6.
Subgroup 5		
Accelerated steady - state operation life	1027	I_Z = column 4 of table V for 168 hours, T_A = 125°C or adjusted, as required, to give an average lot T_J = 225°C.
Electrical measurements		See table IV, steps 2, 3, 4, 5, and 6.
Subgroup 6		
Thermal resistance	4081	$R_{\theta JC}$ = 2.0°C/W maximum. For purposes of this test, junction-to-case shall be used in lieu of junction-to-lead and $R_{\theta JC}$ shall be used in lieu of $R_{\theta JL}$. The case shall be the reference point for calculation of junction-to-case thermal resistance ($R_{\theta JC}$). The mounting arrangement shall be with heat sink to case.

1/ For sampling plan, see MIL-S-19500.

TABLE IIb. Group B inspection for JAN, JANTX, and JANTXV devices.

Inspection 1/	MIL-STD-750	
	Method	Conditions
Subgroup 1		
Solderability	2026	
Resistance to solvents	1022	
Subgroup 2		
Thermal shock (temperature cycling)	1051	T_{high} = +175°C
Surge current (see 4.5.1)		I_{ZSM} = column 9 of table V
Hermetic seal Fine leak Gross leak	1071	
Electrical measurements		See table IV, steps 1, 3, and 4.
Subgroup 3		
Steady-state operation life	1027	T_C = +150°C, I_Z = column 4 of table V
Electrical measurements		See table IV, steps 2, 3, and 4.
Subgroup 4		
Decap internal visual (design verification)	2075	
Subgroup 5		
Thermal resistance	4081	$R_{\theta JC}$ = 2.0°C/W maximum. For purposes of this test, junction-to-case shall be used in lieu of junction-to-lead and $R_{\theta JC}$ shall be used in lieu of $R_{\theta JL}$. The case shall be the reference point for calculation of junction-to-case thermal resistance ($R_{\theta JC}$). The mounting arrangement shall be with heatsink to case.
Subgroup 6		
High temperature (nonoperating life)	1032	T_A = +175°C
Electrical measurements		See table IV, steps 2, 3, and 4.

1/ For sampling plan, see MIL-S-19500.

TABLE III. Group C inspection for all quality levels.

Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
Subgroup 1						
Physical dimensions	2066	See figure 1				
Subgroup 2						
Thermal shock (glass strain)	1056					
Terminal strength	2036					
Tension		Test condition A, 20 pounds, t = 15 seconds				
Torque (stud)		Test condition D_2, mounting = normal mounting means, 30 lb-in, t = 30 seconds				
Bending stress		Test condition F, 3 pounds, t = 15 seconds				
Hermetic seal Fine leak Gross leak	1071					
Moisture resistance	1021					
Electrical measurements		See table IV, steps 1, 3, 4, 5, and 6 (JANS) and steps 1, 3, and 4 (JAN, JANTX, and JANTXV).				
Subgroup 3						
Shock	2016					
Vibration, variable frequency	2056					
Constant acceleration	2006					
Electrical measurements		See table IV, steps 1, 3, 4, 5, and 6 (JANS) and steps 1, 3, and 4 (JAN, JANTX and JANTXV).				
Subgroup 4						
Salt atmosphere (corrosion)	1041					

See footnotes at end of table.

TABLE III. Group C inspection for all quality levels - Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
Subgroup 5						
Not applicable						
Subgroup 6						
Steady-state operation life	1026	T_A = +150°C, I_Z = column 4 of table V				
Electrical measurements		See table IV, steps 2, 3, 4, and 6 (JANS) and steps 2, 3, and 4 (JAN, JANTX, andJANTXV).				
Subgroup 7 2/		JAN, JANTX, and JANTXV levels only				
Temperature coefficient of regulator voltage (see 4.5.4)	4071	I_Z = column 4 of table V, T_1 = 30°C ±3°C, T_2 = T_1 + 100°C each sublot	αV_Z		Column 13 of table IV	%/°C
Voltage regulation (see 4.5.2)		Each sublot	$V_{Z(reg)}$		Column 8 of table V	V dc

1/ For sampling plan, see MIL-S-19500.
2/ LTPD = 10, small lot = 12 devices, c = 0.

TABLE IV. Groups B and C electrical measurements.

Step	Inspection	MIL-STD-750		Symbol	Limits 1/		Unit
		Method	Conditions		Min	Max	
1	Reverse current	4016	DC method, V_R = column 10 of table V	I_{R1}		Column 11	μA dc
2	Reverse current	4016	DC method, V_R = column 10 of table V	I_{R3}		Column 12	μA dc
3	Regulator voltage	4022	I_Z = column 4 of table V	V_Z	Column 2	Column 3	V dc
4	Small-signal breakdown impedance	4051	I_Z = column 4 of table V, I_{sig} = 10% of I_Z	Z_Z		Column 5	ohms
5	Knee impedance	4051	I_{ZK} = 5 mA dc, I_{sig} = 0.5 mA dc	Z_{ZK}		Column 6	ohms
6	Forward voltage	4011	I_F = 10 A dc	ΔV_F 2/		±50 mV dc change from previously measured value	

1/ Column references are to table V.
2/ Devices which exceed the group A limits for this test shall not be accepted.

TABLE V. Characteristics and ratings.

Voltage group	Col 1 V_Z Nom	Col 2 V_Z Min	Col 3 V_Z Max	Col 4 I_Z Test current	Col 5 Z Impedance max	Col 6 Z_K Knee impedance	Col 7 I_Z Max dc current T_C = 30°C ±3°C	Col 8 V_{ZREG} Voltage regulation	Col 9 I_{ZSM} T_C = 30°C ±3°C max	Col 10 V_R Reverse voltage	Col 11 I_{R1} Reverse current dc max	Col 12 I_{R3} Reverse current dc max (after life test)	Col 13 αV_Z Temperature coefficient max	Col 14 I_{R2} Reverse current dc maximum T_A = +150°C
Subgroup I	V dc	V dc	V dc	mA dc	Ω	Ω	mA dc	V dc	A dc	V dc	µA dc	µA dc	%/°C	µA dc
1N4549	3.9	3.71	4.09	3200	0.16	400	12400	0.66	40.00	0.5	150	300	-.050	
1N4550	4.3	4.09	4.51	2900	0.16	500	11050	0.58	38.00	0.5	150	300	-.035	
1N4551	4.7	4.47	4.93	2650	0.12	600	10100	0.40	35.00	1.0	100	200	±.015	1/
1N4552	5.1	4.85	5.35	2450	0.12	650	9300	0.36	32.00	1.0	20	50	+.035	
1N4553	5.6	5.32	5.88	2250	0.12	900	8500	0.34	30.00	1.0	20	50	+.050	
1N4554	6.2	5.89	6.51	2000	0.14	1000	7650	0.36	25.00	2.0	20	50	+.055	
Subgroup II														
1N3305	6.8	6.46	7.14	1850	0.20	750	7000	0.40	37.00	4.5	300	600	+.057	1000
1N3306	7.5	7.13	7.87	1700	0.30	350	6350	0.50	33.00	5.0	125	250	+.067	750
1N3307	8.2	7.79	8.61	1500	0.40	250	5800	0.60	29.00	5.4	50	100	+.070	500
1N3308	9.1	8.65	9.55	1370	0.50	250	5240	0.70	26.50	6.1	25	50	+.075	400
1N3309	10.0	9.50	10.50	1200	0.60	250	4760	0.90	24.00	6.7	25	50	+.081	300
1N3310	11.0	10.45	11.55	1100	0.80	250	4330	1.00	21.50	8.4	10	20	+.085	200
1N3311	12.0	11.40	12.60	1000	1.00	250	3970	1.10	20.00	9.1	10	20	+.079	200
1N3312	13.0	12.35	13.65	960	1.10	250	3750	1.20	18.50	9.9	10	20	+.080	200
1N3313	14.0	13.30	14.70	890	1.20	250	3000	1.40	17.00	11.4	10	20	+.080	200
1N3314	15.0	14.25	15.75	830	1.40	250	3170	1.50	15.50	11.4	10	20	+.082	200
1N3315	16.0	15.20	16.80	780	1.60	250	2970	1.60	14.75	12.2	10	20	+.083	200
1N3316	17.0	16.15	17.85	740	1.80	250	2500	1.80	13.75	13.0	10	20	+.085	200
1N3317	18.0	17.10	18.90	700	2.00	250	2640	1.90	12.75	13.7	10	20	+.085	200
1N3318	19.0	18.05	19.95	660	2.20	250	2200	2.00	12.25	13.7	10	20	+.086	200

See footnote at end of table.

TABLE V. Characteristics and ratings - Continued.

Voltage group	Col 1 V_Z Nom	Col 2 V_Z Min	Col 3 V_Z Max	Col 4 I_Z Test current	Col 5 Z Impedance max	Col 6 Z_K Knee impedance	Col 7 I_Z Max dc current T_C = 30°C ±3°C	Col 8 V_{ZREG} Voltage regulation	Col 9 I_{ZSM} T_C = 30°C ±3°C max	Col 10 V_R Reverse voltage	Col 11 I_{R1} Reverse current dc max	Col 12 I_{R3} Reverse current dc max (after life test)	Col 13 αV_Z Temperature coefficient max	Col 14 I_{R2} Reverse current dc maximum T_A = +150°C
Subgroup II	V dc	V dc	V dc	mA dc	Ω	Ω	mA dc	V dc	A dc	V dc	µA dc	µA dc	%/°C	µA dc
1N3319	20.0	19.00	21.00	630	2.40	250	2380	2.30	11.75	15.2	10	20	+.086	200
1N3320	22.0	20.90	23.10	570	2.50	250	2160	2.50	10.50	16.7	10	20	+.087	200
1N3321	24.0	22.80	25.20	520	2.60	250	1980	2.60	9.75	18.2	10	20	+.088	200
1N3322	25.0	23.75	26.25	500	2.70	250	1550	2.80	9.00	18.2	10	20	+.089	200
1N3323	27.0	25.65	28.35	460	2.80	250	1760	2.90	8.25	20.6	10	20	+.090	200
1N3324	30.0	28.50	31.50	420	3.00	300	1590	3.00	7.75	22.8	10	20	+.091	200
1N3325	33.0	31.35	34.65	380	3.20	300	1440	3.20	7.25	25.1	10	20	+.092	200
Subgroup III														
1N3326	36.0	34.20	37.80	350	3.50	300	1320	3.40	6.50	27.4	10	20	+.093	200
1N3327	39.0	37.10	40.90	320	4.00	350	1220	3.60	5.88	29.7	10	20	+.094	200
1N3328	43.0	40.90	45.10	290	4.50	400	1110	3.80	5.38	32.7	10	20	+.095	200
1N3329	45.0	42.75	47.25	280	4.50	400	930	3.90	5.14	32.7	10	20	+.095	200
1N3330	47.0	44.65	49.35	270	5.00	400	1020	4.00	4.90	35.8	10	20	+.095	200
1N3331	50.0	47.50	52.50	250	5.00	500	830	4.20	4.76	38.8	10	20	+.096	200
1N3332	51.0	48.45	53.55	245	5.20	500	930	4.40	4.36	38.8	10	20	+.096	200
1N3333	52.0	49.40	54.60	240	5.50	500	790	4.65	4.38	42.6	10	20	+.096	200
1N3334	56.0	53.20	58.80	220	6.00	500	850	4.75	4.13	42.6	10	20	+.096	200
1N3335	62.0	58.90	65.10	200	7.00	600	770	5.00	3.68	47.1	10	20	+.097	200
1N3336	68.0	64.60	71.40	180	8.00	600	700	5.50	3.35	51.7	10	20	+.097	200
1N3337	75.0	71.25	78.75	170	9.00	600	640	5.75	3.00	56.0	10	20	+.098	200
1N3338	82.0	77.90	86.10	150	11.00	700	580	6.25	2.75	62.2	10	20	+.098	200
1N3339	91.0	86.45	95.55	140	15.00	800	530	6.75	2.35	69.2	10	20	+.099	200

See footnote at end of table.

TABLE V. Characteristics and ratings - Continued.

Voltage group	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
	V_Z Nom	V_Z Min	V_Z Max	I_Z Test current	Z Impedance max	Z_K Knee impedance	I_Z Max dc current T_C = 30°C ±3°C	V_{ZREG} Voltage regulation	I_{ZSM} T_C = 30°C ±3°C max	V_R Reverse voltage	I_{R1} Reverse current dc max	I_{R3} Reverse current dc max (after life test)	αV_Z Temperature coefficient max	I_{R2} Reverse current dc maximum T_A = +150°C
Subgroup IV	V dc	V dc	V dc	mA dc	Ω	Ω	mA dc	V dc	A dc	V dc	µA dc	µA dc	%/°C	µA dc
1N3340	100.0	95.00	105.00	120	20.00	900	480	7.50	2.25	76.0	10	20	+.100	200
1N3341	105.0	99.75	110.25	120	25.00	1000	380	8.25	2.15	83.0	10	20	+.100	200
1N3342	110.0	104.50	115.50	110	30.00	1100	430	9.00	2.05	83.0	10	20	+.100	200
1N3343	120.0	114.00	126.00	100	40.00	1200	400	9.50	1.88	91.2	10	20	+.100	200
1N3344	130.0	123.50	136.50	95	50.00	1300	370	10.00	1.73	99.8	10	20	+.100	200
1N3345	140.0	133.00	147.00	90	60.00	1400	325	11.00	1.61	114.0	10	20	+.100	200
1N3346	150.0	142.50	157.50	85	75.00	1500	320	12.00	1.50	114.0	10	20	+.100	200
1N3347	160.0	152.00	168.00	80	80.00	1600	300	13.00	1.43	121.6	10	20	+.100	200
1N3348	175.0	166.25	183.75	70	85.00	1700	230	13.75	1.34	121.6	10	20	+.100	200
1N3349	180.0	171.00	189.00	68	90.00	1800	260	14.50	1.25	136.8	10	20	+.100	200
1N3350	200.0	190.00	210.00	65	100.00	2000	240	16.00	1.10	152.0	10	20	+.100	200

1/ This test is not applicable for devices 1N4549B, RB through 1N4554B, RB.

4.5 Methods of inspection. Methods of inspection shall be as specified in the appropriate tables and as follows.

4.5.1 Surge current I_{ZSM}. The currents specified in column 9 of table V shall be applied in the reverse direction and shall be superimposed on the current (I_Z = column 4 of table V) a total of five surges at 1-minute intervals. Each individual surge shall be one-half square wave pulse of 1/120-second duration or an equivalent one-half sine wave with the same effective (rms) current.

4.5.2 Voltage regulation V_Z(reg). A current at 10 percent of I_Z (column 7) shall be maintained until thermal equilibrium is obtained, and the V_Z shall then be increased to a level of 50 percent of I_Z (column 7) and maintained at this level for a period of time until thermal equilibrium is obtained. At which time, the voltage change shall not exceed column 8 of table V. During this test, the case temperature (T_C) of the diode shall be equal to 30°C ±3°C.

4.5.3 Regulator voltage. The I_Z test current (column 4 of table V) shall be applied until thermal equilibrium is obtained prior to reading the regulator voltage. During this test, the case temperature (T_C) of the diode shall be equal to 30°C ±3°C.

4.5.4 Temperature coefficient of regulator voltage (αV_Z). The device shall be temperature stabilized with current applied prior to reading regulator voltage at the specified case temperatures.

4.5.5 Inspection condition. Unless otherwise specified in MIL-S-19500 or herein, all inspections shall be made at case temperature (T_C) of 30°C ±3°C.

4.5.6 Test ratings. Test ratings shall be as shown in table V. Type numbers with the suffix "RB" shall have identical requirements as shown in table V for the corresponding B type except the polarity shall be as specified in 3.3.2 herein.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-S-19500.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Notes. The notes specified in MIL-S-19500 are applicable to this specification.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Issue of DODISS to be cited in the solicitation.

b. Lead material and finish (see 3.3.1).

c. Type designation, polarity type, and product assurance level.

6.3 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians:
Army - ER
Air Force -17
NASA - NA

Review activities:
Air Force - 80, 85, 99
NASA - LRC, MSF
DLA - ES

Preparing activity:
Army - ER

Agent:
DLA - ES

(Project 5961-1641)